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EXAMINER	
BRIER, JEFFERY A	

ART UNIT	PAPER NUMBER
2672	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/616,338	LIN ET AL.	
	Examiner	Art Unit	
	Jeffery A Brier	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The disclosure is objected to because of the following informalities:

In paragraph 0024 at line 5 "a a" should be changed to "a"; and

In paragraph 0025 at line 12, page 7 line 9, "frome 41" should be changed to "frame 41".

Appropriate correction is required.

Claim Objections

3. Claim 8 is objected to because of the following informalities: at line 6 "thid" should be "third". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3, 4, 7-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "the parameters" at line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 7 recites the limitation "said second display frame" at lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 at lines 6-8 is indefinite because it does distinguish the overlay frame of C2 from C3.

Dependent claims 4, 8, 10, and 11 do not correct the above noted 112 second paragraph problems.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Nagata, U.S. Patent No. 6,522,341.

Nagata teaches an overlay frame processor that stores n multiples layers of image frames and each layer has a corresponding alpha value or values. The formula used by the circuit of figure 1 is described at column 2 lines 53-63.

A detailed analysis of the claims follows

Claim 1:

Nagata teaches an overlay frame (*Column 2 lines 28-30 describes input circuit 10 provides a frame of each of the rearmost to the foremost layers.*) processing method for showing a display frame and an overlay frame outputted by a digital image processing device on a display (*Nagata shows the result of mixing the frames by mixer 30 on display monitor 130.*), said display frame and said overlay frame respectively consisting of display frame pixel data (*Column 2 lines 48-50 discusses pixel values form image memory 40 which is the source of pixel values displayed on display monitor 130.*) and overlay frame pixel data (*Column 2 lines 45-48 discusses pixel values from layer input circuit 10 which is the source of pixel values that are overlayed onto the displayed frame of pixel values.*) at corresponding positions (*Column 2 lines 45-50 discusses performing mixing the display frame pixel values Vb and the overlay frame pixels Vi.*), said method comprising steps of:

performing an alpha-blending operation on said display frame pixel data and said overlay frame pixel data to obtain an alpha-blended pixel data (*Column 2 line 43 to column 3 line 4.*); and

substituting said alpha-blended pixel data for said overlay frame pixel data to be displayed by said display (*Column 2 lines 42-43 and 66-67 discusses substituting the image frame stored in memory 40 with the newly alpha blended pixel values.*).

Claim 2:

Nagata teaches the method according to claim 1 wherein a color value C4 (*Vmk represents a pixel color value since Vmk is a pixel value of video and since applicants specification did not give any special meaning to color value. Thus, Nagata's pixel value is a color value of the pixel.*) of said alpha-blended pixel data is determined by a formula C4= (1-A1)*C1+A1*C2 (*This is the same equation give by Nagata at column 2 line 62 without the layer identifier k.*), where C1 indicates a color value of said display frame pixel data (*Nagata's Vb is applicants C1.*), C2 indicates a color value of said overlay frame pixel data (*Nagata's Vi is applicants C2.*), C), and A1 indicates an alpha value lying between 0 and 1 (*Nagata's alpha value lines between 0 and 1, see column 2 lines 32-33.*).

Claim 3:

The method according to claim 2 wherein said alpha value A1 is one of the parameters included in said display frame pixel data (*This claim does not claim*

how the alpha value is "included" in the display frame pixel data. There are many ways to do this and one is shown by Nagata where opacity memory 120 has alpha values for the frame pixel data overlaying the display frame data stored in memory 40 and overlay frame data stored in image memory 110.).

Claim 4:

Nagata teaches the method according to claim 2 wherein said alpha value A1 is a preset value (*The alpha values stored in opacity memory 120 are preset values.*).

Claim 5:

Claim 5 is similar to claim 1. The difference is claim 1 claims a display frame and an overlay frame while claim 5 claims a display frame, a first overlay frame, and a second overlay frame. Nagata teaches at column 2 lines 22-24 multiple overlay frames stored in image memory 110. Therefore this claim is rejected for the reasons given for claim 1 and since Nagata teaches several overlay frames.

Nagata teaches an overlay frame processing method for showing a display frame and a first and a second overlay frames (*Nagata teaches at column 2 lines 22-24 multiple overlay frames stored in image memory 110.*) outputted by a digital image processing device (*Mixing apparatus is a digital image processing device since at column 1 lines 9-15 the background*

upon which Nagata will improve upon is a digital processing system, thus, Nagata teaches to one of ordinary skill in the art the improvement applies to digital systems.) on a display, said display frame (*Vb*) and said first and said second overlay frames (*Vi, Nagata teaches at column 2 lines 22-24 multiple overlay frames stored in image memory 110.*) respectively consisting of display frame pixel data and first and second overlay frame pixel data, said method comprising steps of:

performing an alpha-blending operation on said display frame pixel data and said first overlay frame pixel data of a first pixel point to obtain a first alpha-blended pixel data (*Column 2 line 43 to column 3 line 4.*);

performing an alpha-blending operation on said display frame pixel data and said second overlay frame pixel data of a second pixel point to obtain a second alpha-blended pixel data (*Column 2 line 63 to column 3 line 4 describes blending the previous blended frame now stored in image memory 40 with the next overlay frame stored in memory 110. Since a frame is made up of many pixel points then the blending of the second layer with the display frame performs a blending at a second pixel point different than the first pixel points. See figures 2A-2E which illustrate first points for area 11 and second points for area 12 and which also shows third points 13 where areas 11 and 12 overlap.*); and

displaying said first and said second alpha-blended pixel data at said first and said second pixel points, respectively (*Figure 2E illustrates displaying the first and second areas on display monitor 130.*).

Claim 6:

This claim is indentical, except for dependency, to claim 2 and is rejected for the reasons given for claim 2.

Claim 7:

Nagata teaches the method according to claim 5 wherein a color value C5 (*Area 12 has a pixel value indpendent of area 11. Vmk represents a pixel color value since Vmk is a pixel value of video and since applicants specification did not give any special meaning to color value. Thus, Nagata's pixel value is a color value of the pixel.*) of said second alpha-blended pixel data is determined by a formula C5 (1-A2)*C1+A2*C3, where C1 indicates a color value of said second display frame pixel data (*Vb, The blended frame stored in image memory is a second display frame of pixel data.*), C3 indicates a color value of said second overlay frame pixel data (*Vi, The next layer read from image memory 110 is the second overlay frame.*), and A2 indicates an alpha value lying between 0 and 1 (*Nagata's alpha value lines between 0 and 1, see column 2 lines 32-33.*).

Claim 8:

Nagata teaches the method according to claim 5 wherein said first and said second overlay frames overlap with each other to form an overlapped region (*See figure 2E.*), and said method further comprises steps of:

performing an alpha-blending operation on said display frame pixel data and said first and said second overlay frame pixel data of a third pixel point in said overlapped region to obtain a third alpha-blended pixel data (*Area 13 corresponds to the third pixel point where the frame pixel data, the first overlay frame pixel data, and the second overlay frame pixel data are blended together to form the third alpha blended pixel data.*); and

displaying said third alpha-blended pixel data at said third pixel point (*Figure 2E illustrates displaying the first, second, and third areas on display monitor 130.*).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata, U.S. Patent No. 6,522,341.

Claims 9-11:

Claim9:

Nagata suggests the method according to claim 8 wherein a color value C6 of said third alpha-blended pixel data is determined by a formula C6=A1*[A2*C2+(1-A2)*C3]+(1-A1)*C1, or C6 A2*C2+(1-A2)(1-A1)*C3+A1*C1, where C1 indicates a color value of display frame pixel data in said overlapped region (*Vb1*) , C2 indicates a color value of overlay frame pixel data in said overlapped region (*Vi1*), C3 indicates a color value of overlay frame pixel data in said overlapped region (*Vi2*), and A1 and A2 are alpha values lying between 0 and 1. Nagata does not clearly teach the equation but, it is an obvious variation of Nagata's equation. It would have been obvious to one of ordinary skill in the art at the time of applicants invention to derive equation C6 because it is represent one way of obtaining an overlay of three layers, see figure 2E.

Claim 10;

Nagata teaches the method according to claim 9 wherein said alpha value A1 is one of the parameters included in said display frame pixel data (*This claim does not claim how the alpha value is "included" in the display frame pixel data. There are many ways to do this and one is shown by Nagata where opacity memory 120 has alpha values for the frame pixel data overlaying the display frame data stored in memory 40 and overlay frame data stored in image memory 110.*), and said alpha

value A2 is a preset value (*Opacity memory 120 stores preset alpha values.*).

Claim 11:

Nagata teaches the method according to claim 9 wherein said alpha values A1 and A2 are preset values (*Opacity memory 120 stores preset alpha values.*).

Claims 12-15:

Nagata fails to teach the claimed digital to analog converter.

Nagata suggests this by using a display monitor 130 which inherently uses analog voltages to drive each of its individual pixels. For example computers use an analog to digital convertor to convert the digital frame data from the computer into analog signals that are transmitted to the VGA monitors.

It would have been obvious to one of ordinary skill in the art at the time of applicants invention to use an analog to digital converter to convert the display frame digital data supplied by image memory 40 into analog signal and transmitting that signal to display monitor 130 because each pixel requires an analog voltage (and sometimes current) to drive the pixel to a correct pixel value..

Claim 12:

Nagata teaches an overlay frame processing device for showing a display frame and an overlay frame outputted by a digital image processing device on a display (*see the discussion given for claims 1 and 5.*), said display frame and said

overlay frame respectively consisting of display frame pixel data and overlay frame pixel data at corresponding positions, comprising:

a display controller reading and transmitting said display frame pixel data (*Mixing apparatus 100 reads a frame from image memory 40 and transmits the frame to display monitor 130.*);

an overlay engine reading and transmitting said overlay frame pixel data (*Input circuit 10 reads the overlay frame data from image memory 110 and transmits the read overlay frame data to mixer 30.*);

an alpha-blending engine in communication with said display controller and said overlay engine, receiving and performing an alpha-blending operation on said display frame pixel data and said overlay frame pixel data to obtain an alpha-blended pixel data (*Mixer 30 is an overlay engine that alpha blends the frame and overlay data. Since mixer 30 is in communication with image memory 40 it is in communication with the claimed display controller that reads image memory 40.*); and

a digital-to-analog converter in communication with said alpha-blending engine, converting said alpha-blended pixel-data into an analog signal and transmitting said analog signal to said display to be displayed (*Nagata does not clearly teach this but as discussed above Nagata suggests this and as stated above this would have been obvious to one of ordinary skill in the art.*).

Claim 13:

Nagata teaches the device according to claim 12 wherein said display frame pixel data and said overlay frame pixel data are stored in a memory (*image memories 40 and 110.*) of said digital image processing device.

Claim 14:

Nagata teaches the device according to claim 12 wherein said alpha-blending engine realizes (*Nagata reads an opacity value from memory 120 in response to the mixing apparatus reading image frame memory and overlay frame memory 110, thus, broadly mixer has realized the alpha value from the display frame pixel value.*) an alpha value from said display frame pixel value to perform said alpha-blending operation.

Claim 15:

Nagata teaches the device according to claim 12 wherein said alpha-blending engine realizes an alpha value from a memory (*opacity memory 120 store alpha values.*) of said digital image processing device to perform said alpha-blending operation.

Prior Art

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Oka, US Patent Application No. 2001/0055028, teaches with regard to figures 1-3 compositing RGB color values by using alpha values.

Brunner et al., U.S. Patent No. 6,369,830, teaches overlaying many color layers by using alpha values from each of the layers.

The Porter and Duff article teach alpha based blending.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffery A Brier whose telephone number is 703-305-4723. The examiner can normally be reached on M-F from 6:30 to 3:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi, can be reached at (703) 305-4713). The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeffery A Brier
Primary Examiner
Art Unit 2672